

Salt Tracking and Reporting: Example Form Instructions

Introduction: The Salt Tracking and Reporting Workgroup of the Salt Management Strategy is charged with the responsibility of discussing and offering recommendations on:

- Salt use tracking
 - ✓ Uniform metrics for data comparability, and
 - ✓ Region-wide trend analyses
- BMP Tracking
 - ✓ Process for tracking iterative BMP adoption for continuous improvement
 - ✓ Monitor success of BMPs

Tracking and reporting is essential to improved management of winter salt applications. The example forms are offered as a component of a comprehensive strategy to facilitate improved winter maintenance that minimizes over use of salt products.

Use of the example reporting forms is **voluntary**. They may be valuable to support internal winter maintenance management, and their broad adoption with central coordination would enable regional scale analysis.

The forms provide the ability to track and report at varied levels of detail. **Tier 1** (Coarse) data elements focus on seasonal reporting at a limited level of detail. **Tier 2** data elements document each organization's winter maintenance activities at a storm-specific level. Tier 1 and 2 reporting would thoroughly document winter maintenance activities for all reporting organizations. **Tier 3** (Fine) data elements operate at the "treatment area" (transportation route, property, etc.) level of detail, and require preparation of a separate form for each treatment area, for each storm. Tier 3 reporting would support more refined analysis of the data and management strategies.

In addition to discussing/refining individual reporting elements and their structure, future workgroup discussions should consider whether and how forms would be submitted to a central entity overseeing SaMS implementation.

FORM A: Operational Areas Reporting

Organization/Location

1. Fill in **Organization Name**
2. Circle/Bold the **Reporting Tier**
3. Circle **Jurisdictional Area(s)** in NoVA where Organization Operates
4. Enter the reporting **Winter Season**
5. For **Tier 3**, identify Treatment Area with a number/code

Treatment Areas

6. **Tier 1:**
 - a. Transportation: Enter **miles** of Highways, Primary Roads, and Local Roads. *To simplify, could ask for **total lane miles** maintained by organization.*

- b. Property Maintenance: Enter **acres or sq. ft.** of Parking Lots, Sidewalks, and Other Areas (driveways, recreational areas, etc.) maintained. *To simplify, could ask for **total acres or sq.ft.** maintained.*

7. **Tier 2:**

- a. Enter the **Dates of Each Storm Deployment** and the **Treatment Areas** for each storm. *To simplify, rather than entering miles or acres/sq.ft., could enter "All", "about half" "none" etc. in each column (for "Highways", "Primary", and "Local" roads, and for "Parking", "Sidewalk" and "Other" areas.*

8. **Tier 3:**

- a. **Each Treatment Area** will have a **separate Form A** completed.
- b. Enter the **Dates of Each Storm Deployment** and the **Treatment Areas** (transportation route/property/etc.) for each storm.
- c. Provide Treatment Area **number/code** (used at top of form), and briefly **describe** the Treatment Area (transportation route, property unit) at bottom of Form A.

FORM B: Product Use Reporting

- 1. Fill in **Organization Name**
- 2. Circle/Bold the **Reporting Tier**
- 3. Enter the reporting **Winter Season**
- 4. For **Tier 3**, identify Treatment Area with a number/code

Products Used: *Suggested methods to measure or estimate product use will be provided separately.*

5. **Tier 1:**

- a. Enter total amount (tons, dry lbs., or gallons) of all **Solid and Liquid Products** used during the **winter season**.
- b. Enter name(s) and total amount(s) of any **additional products** used during the winter season (i.e., sand, other abrasives, and any other salt or non-salt deicers not listed on the form).

6. **Tier 2:**

- a. Enter the total amount (tons, dry lbs., or gallons) of all **Solid and Liquid Products** used during **each storm** (annual totals will be computed).
- b. Enter any **additional products** used at either the storm or seasonal level of detail.

7. **Tier 3:**

- a. **Each Treatment Area** will have a **separate Form B** completed.
- b. Enter the amount (tons, dry lbs., or gallons) of all **Solid and Liquid Products** used for **each treatment area** (transportation route/property/etc.) for **each storm**.
- c. Enter any **additional products** used at the storm level of detail.

FORM C: BMP Implementation Reporting

- 1. Enter the **Organization Name**
- 2. Circle/Bold the **Reporting Tier**
- 3. Enter the reporting **Winter Season**
- 4. **Tier 2:** Enter the **Storm Event Number:** use storm number from Form B

BMPs Used

5. Tier 1:

- a. Is Practice Used? Circle Yes, No, or Limited for each BMP Entry for **winter season**.
- b. Was BMP Effective? Circle Yes, No, or Partially for each BMP Category Entry for **winter season**. *Additional information will be provided on suggested approach to assessing effectiveness.*
- c. Is BMP Planned for Continuation? Circle Yes, No, or Revision for each BMP Category Entry for **(next) winter season**.

6. Tier 2:

- a. **Each Storm Event** will have a **separate Form C** completed.
- b. Complete Is Practice Used; Was BMP Effective, and Is BMP Planned for Continuation responses for each Storm Event.

7. Tier 3:

- a. **Briefly explain** anything where additional narrative is helpful, and any **Limited/Partial/Revision responses** in Comment fields provided at bottom of page. This is where **Barriers** to BMP use can be addressed.
- b. Number all comments in right column and in Comment fields at bottom. This Tier 3 commentary would complement Tier 1 Seasonal BMP reporting (N/A for Tier 2 – storm specific).

FORM D: Winter Season/Storms Reporting

1. Enter the **Organization Name**
2. Circle/Bold the **Reporting Tier**
3. Enter the reporting **Winter Season**

Winter Storm Mobilizations

4. Tier 1:

- a. Enter Number of winter **storm deployments** for the **year**, and **total days** of winter operations.
- b. Enter Total Snowfall ("") and Days with Freezing Rain and Ice for **Winter Season**

5. Tier 2: Enter **publicly available storm-specific information** for the following:

- a. Storm Duration
 - i. Storm Start (Date/Time)
 - ii. Storm End (Date/Time)
- b. Storm Temperatures
 - i. Storm Start
 - ii. Storm End
- c. Inches of Snowfall
- d. Any Ice Accumulation?
- e. Any Freezing Rain?
- f. Other Notes: add comment number and briefly describe in comment field at bottom

6. Tier 3:

- a. Enter **locally detected weather information** for the storm operations (*need to further define this if workgroup desires*).
- b. Enter **Treatment Area #** the locally detected weather info applies to
- c. **Comments:** add comment number and briefly describe any other notes on storm.

FORM A: Operational Areas Reporting

Organization Name: _____

Circle/Bold Reporting Tier:

Tier 1	Tier 2	Tier 3
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Circle/Bold all Geographic Area(s) of Operations: All NoVA; City of Alexandria, Arlington County, City of Fairfax, Fairfax County, City of Falls Church, Loudoun County, City of Manassas, City of Manassas Park, Prince William County

Winter Season: 20____ - 20____

Tier 3 Treatment Area #: _____

Tier 1: Total
Treatment Areas

Highways (lane miles): _____ Primary Roads (lane miles): _____ Local Roads (lane miles): _____

Parking Areas (acres or sq. ft.): _____ Sidewalks (sq. ft.): _____ Other Areas (acres or sq. ft.): _____

Treatment Areas for Each Storm Deployment							
Tier 2: Treatment per Storm Deployment	Date(s) of Each Storm Deployment	Highways (lane miles)	Primary Roads (lane miles)	Local Roads (lane miles)	Parking Areas (acres or sq.ft.)	Sidewalks (sq.ft.)	Other Areas (acres or sq.ft.)
Storm 1							
Storm 2							
Storm 3							
Storm 4							
Storm 5							
Storm 6							
Storm 7							
Storm 8							
Storm 9							
Storm 10							
Season Total		0	0	0	0	0	0

Tier 3: Treatment Area # and Description (Route, Property, etc.): _____

Organization Name: _____

Tier 1	Tier 2	Tier 3
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Tier 3 Treatment Area: _____

[illegible]

FORM C: BMP Implementation Reporting

Organization Name: _____

Circle/Bold Reporting Tier:

Tier 1	Tier 2	Tier 3
Fill out Columns C, D, and E for entire season	Fill out Columns C, D, and E for each storm	Add comment # in Column F, and # and narrative below

Winter Season: 20____ - 20____

Tier 2: Storm Event Number: _____

Best Management Practice		Is Practice Used?	Was BMP Effective?	Is BMP Planned for Continuation?	Tier 3: Optional Notes: discuss limited implem./barriers to BMP use, partial effectiveness, and planned BMP use revisions
1. Plowing Practices	a. Advanced plowing blades/equipment	Yes No Limited	Yes No Partial	Yes No Revision	See Comment ____
	b. Advanced plowing techniques (e.g., plow trains)	Yes No Limited	Yes No Partial	Yes No Revision	See Comment ____
2. Calibrate Application Equipment:	a. Solid Materials	Yes No	Yes No Partial	Yes No Revision	See Comment ____
	b. Liquids	Yes No	Yes No Partial	Yes No Revision	See Comment ____
3. Measure Product Use:	a. Per Storm	Yes No Limited		Yes No Revision	See Comment ____
	b. Seasonal	Yes No Limited		Yes No Revision	See Comment ____
	c. Automated Measurement	Yes No Limited	Yes No Partial	Yes No Revision	See Comment ____
4. Vary Application Rates to Conditions:		Yes No Limited	Yes No Partial	Yes No Revision	See Comment ____
5. Levels of Services (LOS) in Jurisdiction:	a. LOS Established	Yes No Limited		Yes No Revision	See Comment ____
	b. LOS Known and Reviewed by Operators	Yes No Limited		Yes No Revision	See Comment ____
	c. LOS Communicated to Public	Yes No Limited		Yes No Revision	See Comment ____
	d. Evaluate if LOS Met and Not Exceeded	Yes No Limited		Yes No Revision	See Comment ____
6. Training Programs:	a. Operations Staff & Supervisors	Yes No Limited	Yes No Partial	Yes No Revision	See Comment ____
	b. Others (Explain in Notes)	Yes No Limited	Yes No Partial	Yes No Revision	See Comment ____

Best Management Practice		Is Practice Used?	Was BMP Effective?	Is BMP Planned for Continuation?	Tier 3: Optional Notes: discuss limited implem./barriers to BMP use, partial effectiveness, and planned BMP use revisions
7. Anti-icing:	a. With Solid Materials	Yes No Limited	Yes No Partial	Yes No Revision	See Comment __
	b. With Liquids	Yes No Limited	Yes No Partial	Yes No Revision	See Comment __
8. Use of Liquids:	a. Pretreated salt	Yes No Limited	Yes No Partial	Yes No Revision	See Comment __
	b. Pre-wetted salt	Yes No Limited	Yes No Partial	Yes No Revision	See Comment __
	c. Direct Liquid application	Yes No Limited	Yes No Partial	Yes No Revision	See Comment __
9. Pre- and Post-Storm Meetings to Review Plans and Performance:		Yes No		Yes No Revision	See Comment __
10. Enhanced Equipment/Technology:		Yes No	Yes No Partial	Yes No Revision	See Comment __
11. Use of Weather Forecasting/Surface Temperature Information		Yes No	Yes No Partial	Yes No Revision	See Comment __
12. Salt Storage Facilities:	a. Covered Salt Piles to Keep Dry and Stored on an Impervious Surface	Yes No			See Comment __
	b. Liquids Stored in double walled and/or with secondary containment (if applicable)	Yes No			See Comment __
	c. Controls That Isolate Salt Pile From Runoff	Yes No			See Comment __
	d. Site Cleanup after Loading	Yes No			See Comment __

Best Management Practice	Is Practice Used?	Was BMP Effective?	Is BMP Planned for Continuation?	Tier 3: Optional Notes: discuss limited implem./barriers to BMP use, partial effectiveness, and planned BMP use revisions
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Open-Ended Opportunity for Comments and Additional BMP Reporting

13. Tier 3: Comment __: Use this space to provide explanatory notes as desired, and to explain any entries of "Limited", "Partial" or "Revision" entered above.

Comment __:

Comment __:

Additional BMP __:

Additional BMP __:

Additional BMP __:

Comment __:

Comment __:

Comment __:

Comment __:

Additional BMP __:

Additional BMP __:

Additional BMP __:

Organization Name: _____

Winter Season: 20__ - 20__

Circle/Bold Reporting Tier:

Tier 1	Tier 2	Tier 3
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Tier 1: Number Storm Deployments: # Storms _____ # Total Days of Winter Ops _____

Total Winter Season Snowfall ("): _____ **Days with Freezing Rain (#):** _____ **Days with Ice Accumulation (#):** _____

Winter Storm Information from Publicly Available Sources (NWS, other?): _____

Tier 2: Storm Deployments	Date(s) of Each Storm Deployment	Storm Duration		Storm Temperatures		Inches of Snowfall	Ice Accumulation? (Y or N)	Freezing Rain? (Y or N)	Other Notes on Storm, add Comments below
		Storm Start Date/Time	Storm End Date/Time	Storm Start	Storm End				
Storm 1									
Storm 2									
Storm 3									
Storm 4									
Storm 5									
Storm 6									
Storm 7									
Storm 8									
Storm 9									
Storm 10									
Season Total	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A	

Tier 3: Operational Weather Information from Local Sources/Equipment Sensors: _____

Tier 3: Treatment Area # :

Comment __:

Comment __:

Comment __:

Comment __: